

STUDIES IN THE EUPATORIEAE (ASTERACEAE). CLIX.
ADDITIONS TO THE GENUS, AYAPANA.

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The genus Ayapana was resurrected six years ago (King & Robinson, 1970) for a series of distinctive species having fimbriate style appendages and enlarged cells on the base of the carpopodium. A few corrections and additions have been made since (King & Robinson, 1970; 1973; 1975).

Recent collections from Ecuador and accumulated undetermined specimens of Ayapana from Colombia, Peru and Bolivia have been reviewed and the following three undescribed species and one species needing transfer have been encountered. All the new species have white flowers and blunt oblong phyllaries mostly glabrous in the basal half which relate them to the A. elata complex. The newly combined species seems to belong to this complex also. Because of the complexity of the genus a key to species is offered at the end of the paper.

Ayapana ecuadorensis R.M.King & H.Robinson, sp. nov.
Plantae herbaceae usque ad 4 m altae laxae ramosae. Caules flavo-virides teretes striati dense puberuli. Folia opposita, petiolis non alatis 1.0-1.5 cm longis; laminae ovatae vel lanceolatae plerumque 6-9 cm longae 1.5-4.0 cm latae base acuminatae fere ad basem distincte trinervatae margine remote serrulatae vel subintegrae apice longe anguste acuminatae supra glabrae subtus glandulopunctatae in nervis et nervulis puberulae. Inflorescentiae paniculatae ca. 40 cm altae et latae, pedicellis plerumque 2-5 mm longis minute puberulis; capitula ca. 5 mm alta; squamae involucri ca. 25 ca. 4-seriatae exteriores ovatae 1.0-1.5 mm longae 1 mm latae extus dense puberulae, interiores usque ad 4 mm longae 0.5-1.0 mm latae oblongae vel anguste oblongae bistriatae obtusae vel truncatae extus plerumque glabrae ad apicem dense puberulae; flores 20-25 in capitulo; corollae albae? 3 mm longae superne sensim anguste infundibulares, lobis 0.2 mm longis 0.25 mm latis extus dense glanduliferis pauce breviter setiferis; filamenta in parte superiore ca. 0.15 mm longa; thecae ca. 0.7 mm longae; appendices antherarum oblongae 0.2 mm longae et 0.13 mm latae; appendices stylorum sensim parum angustiores; achaenia 1.3-1.5 mm longa superne setifera et perpaucis glandulifera inferne minute spiculifera ad basem paucis gland-

ulifera; setae pappi 35-40 ca. 2.5 mm longae. Grana pollinis ca. 20 μ in diametro.

Type: ECUADOR: Canar: along the road to Canar, ca. 77 kms ESE of Guayaquil. Elevation ca. 900 ft. Jan. 22, 1976. King & Garvey 6872 (Holotype US, Isotype MO). Paratype: ECUADOR: Canar: along the road to Canar, ca. 24 kms ESE of El Triunfo. Elevation ca. 1,000 ft. King & Garvey 7000 (US, MO).

The new species is most distinct in the form of the leaf which is trinervate from near the basal fifth and which is strongly acuminate. The species seems to be the only member of the white flowered group known in Ecuador but A. elata is known from Panama and the Choco to the north and from Peru to the south. The lack of previous collections of this species indicates the inadequacy of collecting in the lower elevations in Ecuador.

Ayapana haughtii R.M.King & H.Robinson, sp. nov. Plantae herbaceae 1.0-1.5 m altae laxae ramosae. Caules virides teretes striati glabrescentes. Folia opposita, petiolis non alatis 1-3 cm longis; laminae ellipticae primariae 15-17 cm longae et 3.0-3.5 cm latae base anguste acuminatae margine distincte remote serratae apice anguste acutae vel acuminatae supra glabrae subtus glandulo-punctatae et in nervis et nervulis puberulae, nervis secundariis pinnatis utrinque 5-6 sensim valde ascendentibus, folia secundaria 7-12 cm longa obscure serrata vel subintegra. Inflorescentiae paniculatae ca. 40 cm altae et 28 cm latae, ramis et ramulis minute puberulis, ramis laxae subcymosis, pedicellis saepe 5-7 mm longis; capitula ca. 5 mm alta; squamae involucre ca. 30 ca. 4-seriatae exteriores ovatae 1.0-1.5 mm longae et 0.5-0.8 mm latae obtusae extus puberulae, interiores usque ad 4 mm longae 0.7-1.0 mm latae oblongae vel anguste oblongae bistriatae obtusae vel truncatae extus plerumque glabrae ad apicem dense puberulae et glanduliferae; flores ca. 24 in capitulo; corollae albae? 3 mm longae superne sensim anguste infundibulares, lobis 0.2 mm longis et 0.3 mm latis extus dense glanduliferis perpaucis setiferis; filamenta in parte superiore ca. 0.15 mm longa; thecae ca. 0.8 mm longae; appendices antherarum oblongae ca. 0.15 mm longae et 0.13 mm latae; appendices stylorum sensim angustiores; achaemia 1.3-1.5 mm longa superne setifera inferne sparse spiculifera perpaucis glandulifera; setae pappi 35-40 ca. 2.5-2.8 mm

longae. Grana pollinis ca. 20-22 μ in diametro.

Type: COLOMBIA: Sur de Santander: Vicinity of Puerto Berrio, between Carare and Magdalena Rivers, at Puerto Parra, on the Carare River at about 100 m. July 31, 1936. Haught 1972 (Holotype US, Isotype NY).

The unwinged leaf base and the 20-25 flowers per head relate the species most closely to A. trinitensis (Kuntze) K. & R. found in Trinidad and Venezuela and known from one collection in Colombia. The new species is distinct in the much more diffuse inflorescence with many long-pedicelled heads and by the elliptical often narrow rather than ovate leaves.

Ayapana lanceolata R.M.King & H.Robinson, sp. nov.
Plantae scandentes usque ad 3.5 m longae laxae ramosae. Caulis sensim castanei teretes vix striati minute puberuli. Folia opposita, petiolis non alatis 3-9 mm longis; laminae ovato-lanceolatae plerumque 8-13 cm longae et 3.5-5.0 cm latae base rotundatae vel subcordatae margine integrae apice anguste acuminatae supra glabrae, nervis et nebulis prominulis, subtus dense glandulo-punctatae in nervis minute puberulae, nervis secundariis pinnatis utrinque 5-6 plerumque in dimidio inferiores; folia superiora subtrinervata. Inflorescentiae paniculatae usque ad 40 cm altae et 35 cm latae, ramis cymosis, ramis et ramulis minute puberulis, pedicellis plerumque 1-2 mm longis; capitula ca. 6 mm alta; squamae involucri ca. 30 ca. 5-seriatae ovatae vel anguste oblongae 1-5 mm longae et 0.8-1.0 mm latae obtusae vel truncatae plerumque 4-striatae extus plerumque glabrae ad apicem dense puberulae et glanduliferae; flores ca. 24 in capitulo; corollae albae? ca. 3.5 mm longae anguste infundibulares, lobis 0.3 mm longis et latis extus dense glanduliferis; filamenta in parte superiore 1.0-1.5 mm longa; thecae 0.8-1.0 mm longae; appendices antherarum triangulares 0.20-0.25 mm longae et 0.13-0.15 mm latae; appendices stylorum sensim angustiores; achaenia ca. 2 mm longa in costis spiculifera ad apicem pauce glandulifera; setae pappi 30-35 ca. 2.5-2.8 mm longae. Grana pollinis ca. 18-20 μ in diametro.

Type: PERU: San Martin: Prov. & Dist. Lamas, north of San Antonio 2-4 km, along Río Cumbasa in dense jungle. Alt. ca. 1200 ft. Vine to 10 feet; flowers probably white. Oct. 2- Nov. 4, 1937. Belshaw 3517 (Holotype US). Paratypes: PERU: Madre de Dios: Río

Acre. Seringal Auristella. Bl. grünlich gelbweiss, Kletterpfl. August 1911. Ule 9895 (US). BOLIVIA: La Paz: Region tropical, San Carlos b. Mapiri, 750 m, in Gebüsch, Strauch 1 m hoch. August 1907. Buchtien 1507 (US); Prov. of S. Yungas, basin of Río Bopi, San Bartolome (near Calisaya), alt. 750-900 m. Herb. July 1-22, 1939. Krukoff 10353 (US).

The species is immediately distinct by the ovate lanceolate short-petioled leaves with rounded to slightly cordate bases. The under surfaces of the leaves appear brownish from the numerous glandular punctations. The corollas differ in shape significantly from those of A. elata, A. ecuadorensis, A. haughtii, and others of the white flowered group which flare abruptly near the apex and have lobes broader than long. In the new species the corolla is a more conventional funnellform and the lobes are as long as broad. The Bolivian material is very immature and differs in minor ways from the type from north-central Peru. The Ule specimen is in poor vegetative condition but is mature showing all the characteristics of the species. The latter is from an area of Peru adjacent to Bolivia. The species seems to have a considerable range along the edge of the Amazon Basin.

Ayapana pilluanensis (Hieron.) R.M.King & H.Robinson, comb. nov. Eupatorium pilluanense Hieron., Verh. Bot. Ver. Brand. 1906. 48: 201. (1907). The species is placed here on the basis of the description and a photograph of the type specimen (B-destroyed). The species was originally compared with Eupatorium (Condylidium) iresinoides (HBK) by Hieronymous, and the plant in the photo shows the habit shared by Ayapana and Condylidium. Nevertheless, the photo also shows the corolla shape and the involucre well enough to exclude Condylidium from consideration.

Key to Species

1. Heads with paleae; pappus reduced to short fringe A. squarrosa
1. Heads without paleae; pappus with 20-40 capillary bristles 2
2. Heads slightly to strongly reddish; phyllaries acute to acuminate, phyllaries pubescent over most of outer surface 3

2. Heads not reddish, corollas white; phyllaries obtuse or rounded to truncate, inner phyllaries glabrous except at tips 7
3. Phyllaries in 4-5 graduated series, outer phyllaries mostly oblong 4
3. Phyllaries in 2-4 indistinct series, all phyllaries linear-lanceolate 5
4. Leaves perfoliate with broadly winged petioles; heads with ca. 22 flowers A. ornithophora
4. Leaves with very short unwinged petioles; heads with 30-40 flowers A. amygdalina
5. Heads with ca. 25 flowers; inflorescence with densely subcorymbose branches; leaves pinnately veined A. stenolepis
5. Heads with 30-55 flowers; inflorescence with laxly cymose branches; leaves trinervate 6
6. Stems and often midveins of leaves becoming reddish; upper surfaces of leaves glabrous A. triplinervis
6. Stems and midveins of leaves not reddish; upper surfaces of leaves pilose A. jaramillii
7. Leaves short-acute A. pilluanensis
7. Leaves sharply acute to acuminate 8
8. Leaves sessile or with distinct narrow wing to base, often with stipule-like auricles 9
8. Leaves petiolate without evident wings 11
9. Leaves narrowly lanceolate, without hairs below A. hylophila
9. Leaves narrowly lanceolate to ovate, with hairs below on at least the veins 10
10. Branches of inflorescence laxly cymose A. elata
10. Branches of inflorescence densely subcymose to corymbose A. turbacensis

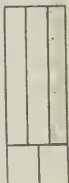
11. Leaves trinervate from near base A. ecuadorensis
11. Leaves pinnately veined 12
12. Heads with ca. 12 flowers; leaf tips strongly and narrowly acuminate A. tovarensis
12. Heads with 20-25 flowers; leaf tips usually only slightly acuminate 13
13. Leaves with rounded or cordate bases; plants of Peru and Bolivia A. lanceolata
13. Leaves with cuneate bases; plants of Colombia and Venezuela 14
14. Inflorescence diffuse without contiguous heads; leaves elliptical to narrowly elliptical A. haughtii
14. Inflorescence with heads in clusters; leaves mostly ovate A. trinitensis

Literature Cited

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Acknowledgement

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PLANTS OF ECUADOR

ROBERT MERRILL KING & HENRY ROBINSON
 Ayapana
 United States National Herbarium

UNITED STATES

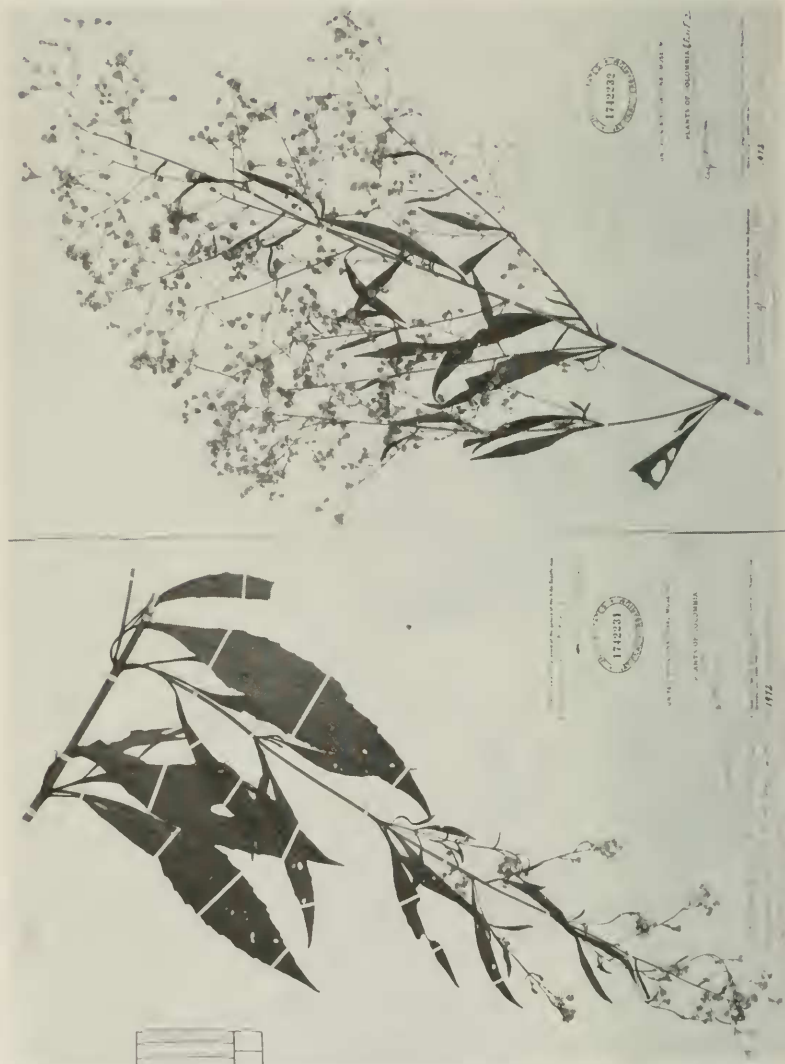
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For description of this species see R. M. King & H. Robinson, *Botanical Magazine*, Tokyo, 1976, p. 100, fig. 1.
 Original description in *Botanical Magazine*, Tokyo, 1976, p. 100, fig. 1.

Ayapana ecuadorensis R.M.King & H.Robinson,
 Holotype, United States National Herbarium. Photo by
 Victor E. Krantz, Staff Photographer, National Museum
 of Natural History.



Ayapana haughtii R.M.King & H.Robinson, Holotype,
United States National Herbarium.



2348
 WALL NOT REPRODUCED

PIRE
 Department San Miguel, Province of Llanos,
 District Llanos

Eupatorium
 J. A. L. George, 1964

Eupatorium

Vine to 10 feet; flowers probably white.
 dense jungle
 CHARLES M. BISHOP 3017

Ayapana lanceolata R.M.King & H.Robinson, Holotype,
 United States National Herbarium.



Enlargements of heads of Ayapana. Top left, A. ecuadorensis. Top right, A. haughtii. Bottom, A. lanceolata.